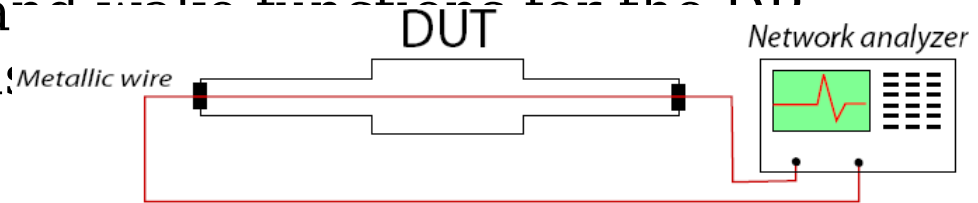
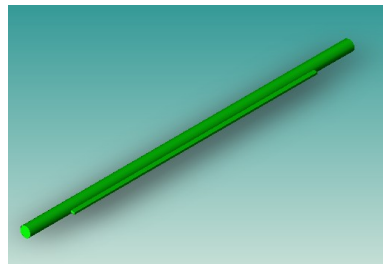


Talk given on ILC DR Workshop, December 18-20, 2007, KEK

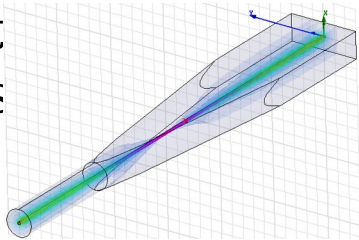
Preliminary estimates of impedance for the ILC damping ring

Calculation of the impedances and transfer functions for the DR vacuum chamber components using

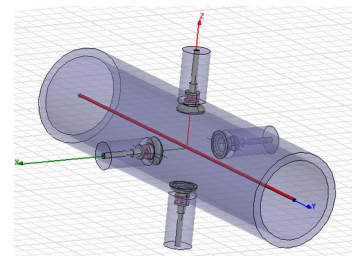


round vacuum chamber with slot

transit
cross s

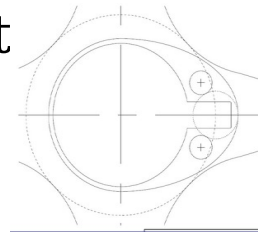
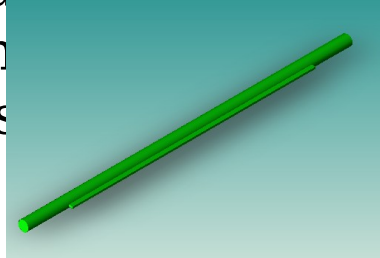


round and rectangular vacuum chamber



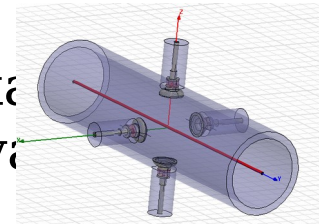
Future plans concerning impedance modeling for ILC DR

longer slot reduces secondary emission due to e-cloud; shorter slot reduces impedance; compromise in antechamber slot design



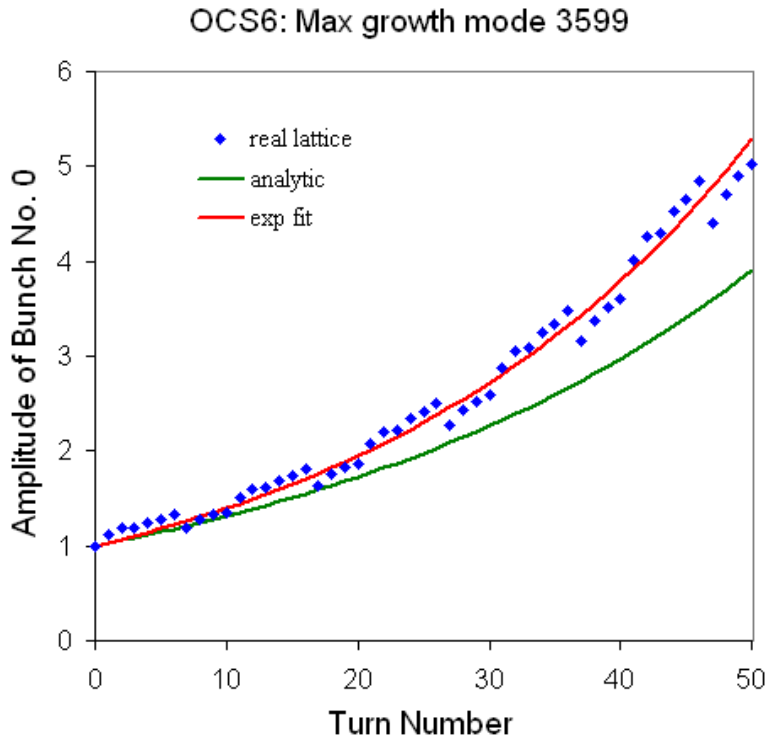
investigate propagation of the HOM in the antechamber (simulation so far used only TEM mode)

generate results for different designs of BPM, for example DIAMOND BPM with adjacent bellows and ends of vacuum chamber with/without slots



Using FFT Convolution for fast simulation

OCS6 Growth Rate

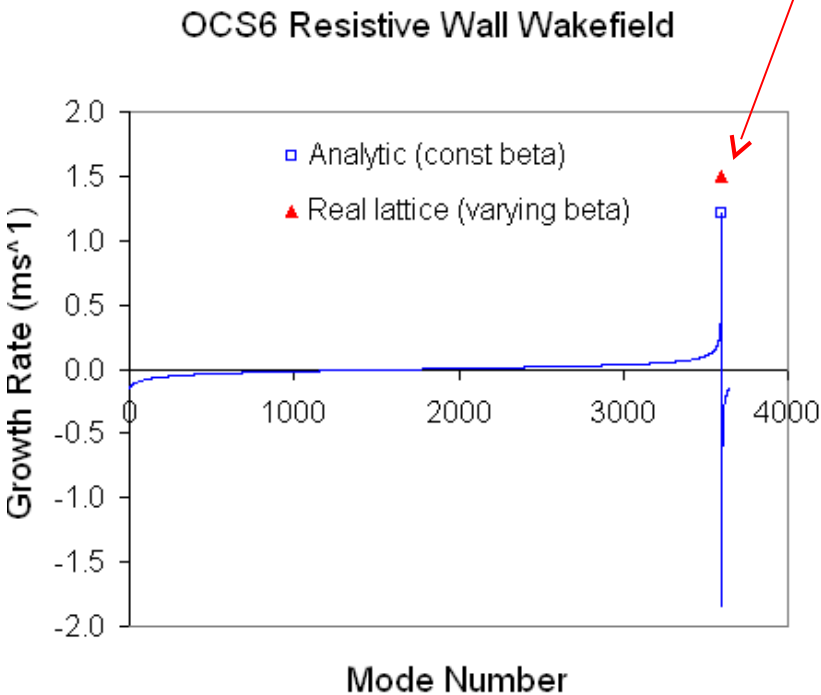


Max. growth rate = 1.49 ms^{-1}

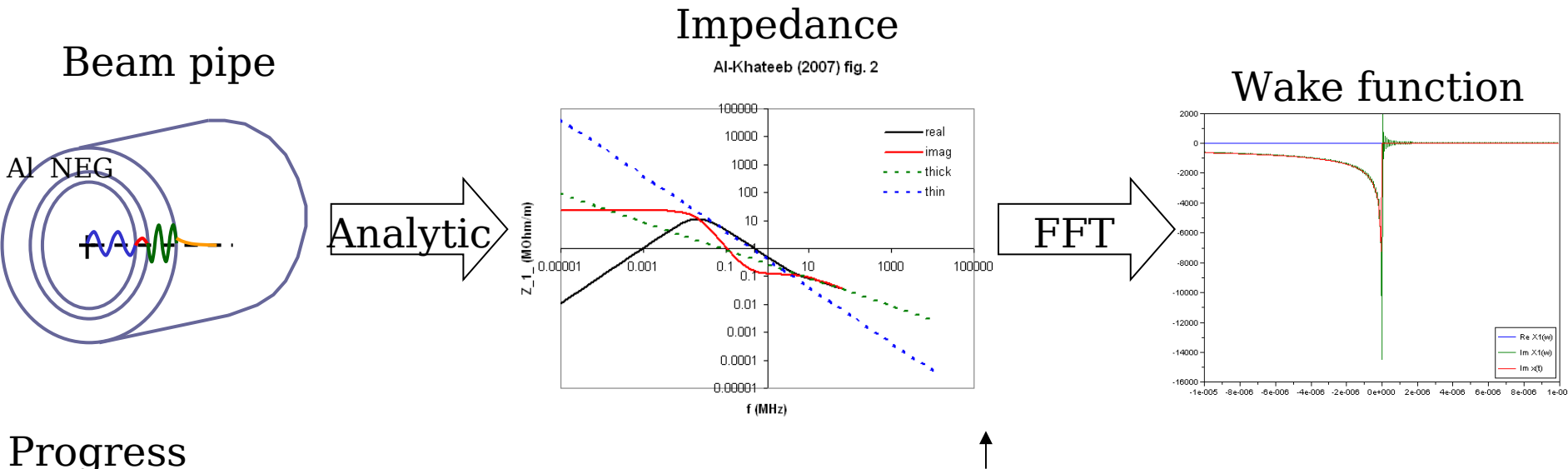
Growth time = $670 \text{ }\mu\text{s}$ or 30 turns

23% higher

Electrons / bunch 2×10^{10}
Al conductivity $3.2 \times 10^{17} \text{ s}^{-1}$
Beam pipe radius 2 cm
Vertical tune 49.31
Bunch Number 3649



Resistive Wall Wake Function for Finite Wall Thickness



Progress

Availability of Analytic Formulae

	$v < c$	$v = c$
Finite wall	Yes	No
Infinite wall	Yes	Yes

Fails at high energy

Need to derive this